

In the Claims

Claims 1-6 (Cancelled)

Claim 7 (Currently amended):

A method for sequencing a polynucleotide, comprising the steps of:

- (i) reacting a target polynucleotide with a helicase enzyme or a primase enzyme, under conditions suitable for enzyme activity; and
- (ii) detecting the interaction between the enzyme and a nucleotide on the target polynucleotide, by measuring radiation to thereby determine the sequence of the target polynucleotide, the detection being carried out by measuring a change in, or absorption of, radiation that occurs during the interaction.

Claim 8 (Previously presented):

The method, according to claim 7, wherein the radiation is electromagnetic.

Claim 9 (Previously presented):

The method, according to claim 7, wherein step (ii) comprises using surface plasmon resonance.

Claim 10 (Previously presented):

The method according to claim 7, wherein step (ii) comprises using nuclear magnetic resonance.

Claim 11 (Previously presented):

The method, according to claim 8, wherein step (ii) comprises using surface plasmon resonance.

Claim 12 (Previously presented):

The method, according to claim 8, wherein step (ii) comprises using nuclear magnetic resonance.

Claim 13 (Previously presented):

The method according to claim 7, wherein the enzyme is immobilised on a solid support.

Claim 14 (Currently amended):

A method for sequencing a polynucleotide, comprising the steps of:

- (i) reacting a target polynucleotide with a helicase enzyme and a primase enzyme under conditions suitable for enzyme activity; and
- (ii) detecting the interaction between the enzymes and ~~a-~~ the nucleotide on the target polynucleotide, by measuring radiation to thereby determine the sequence of the target polynucleotide, the detection being carried out by measuring a change in, or absorption of, radiation that occurs during the interaction.

Claim 15 (Previously presented):

The method, according to claim 14, wherein the radiation is electromagnetic.

Claim 16 (Previously presented):

The method, according to claim 14, wherein step (ii) comprises using surface plasmon resonance.

Claim 17 (Previously presented):

The method according to claim 14, wherein step (ii) comprises using nuclear magnetic resonance.

Claim 18 (Previously presented):

The method, according to claim 15, wherein step (ii) comprises using surface plasmon resonance.

Claim 19 (Previously presented):

The method, according to claim 15, wherein step (ii) comprises using nuclear magnetic resonance.

Claim 20 (Currently amended):

The method according to claim 14, wherein the enzymes are immobilised on a solid support.

Claim 21 (Currently amended):

A sensor chip comprising an optically transparent material; a reflective film; and a helicase enzyme, a primase enzyme, or both a helicase enzyme and a primase enzyme, immobilised thereon, immobilized on said chip.

Claim 22 (New):

A method for sequencing a polynucleotide, comprising the steps of:

- (i) reacting a target polynucleotide with a helicase enzyme under conditions suitable for enzyme activity; and
- (ii) detecting the interaction between the helicase enzyme and the nucleotide on the target polynucleotide, to thereby determine the sequence of the target polynucleotide, the detection being carried out by measuring a change in, or absorption of, radiation that occurs during the interaction.

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